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ISSUES IN THE DISSEMINATION OF INFORMATION FOR ECONOMIC DEVELOPMENT PLANNING

Issues in the Dissemination of Information for Economic Development Planning

I. Introduction

The emerging advanced information systems and the structural changes taking place in many developing countries are signalling the "coming of the information society". These events are focussing attention on the role which information activities can play in modern economic development and subsequently on the need to create appropriate institutions for the transfer of information. In particular, the dissemination of scientific and technological information is being conceived of as a vital element in promoting the technological change so crucial to economic growth. For this reason, advanced systems for information retrieval utilising large-scale data-bases are being set up in developing countries primarily for the purpose of serving users.

Developing countries are now finding themselves in a situation where the importance of information as a resource for technological development must be recognized, but simultaneously with a feeling that the gap with regard to access to such information is constantly widening. On the one hand, this feeling is leading to a new emphasis on support to information activities as a national priority. On the other hand, the urgency of the situation is encouraging decision makers in developing countries review the current infrastructure for international as well as national flow of information, with the objective of enhancing this flow of information in mind. Finally decision-makers in developing countries are being encouraged to consider the introduction of information technology on a large scale, since such technology has become the backbone of modern information retrieval. Ideally, all three actions outlined above would do much to improve the situation of developing countries.

Needless to say, the Lagos Plan of Action, has identified information as important to the development of the African countries. It identifies the lack of information as "one of the most serious obstacles to selection, acquisition and use of appropriate technology options; an understanding of the local environment, character and orientation of the transferees is as important as information on the technology to be supplied. Care should therefore be taken to ensure that the technology supplied match the local needs identified. Machinery should be established to assess and promote the acquisition and dissemination of information on the range of alternative technologies, processes and products available for a particular application"[1] However, there is a strong tendency to focus attention on the mind of these actions - the introduction of new technology and to neglect the importance of genuine support for information activities and a critical review of the current information flow which is necessary for successful introduction of new technology.

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[1] OAU: The Lagos Plan of Action for the Economic development of Africa, 1980-2000. page 51, paragraph 154.

This paper will address some issues associated with a review of the current situation namely, the issues in the dissemination of information for development Planning. These issues These issues hamper the smooth flow of information for development, and should be addressed as soon as possible by the developing countries. In fact, it will be argued here that these issues may reduce the effectiveness of information retrevial and dissemination using new information technology consid rably, and consequently that proper attention should be given in advance to addressing these issues.

(a) Increasing Agricultural Production

Africa's needs in terms of Agricultural production is certainly increasing. One of the major problems facing the African countries is the lack of enouch food to feed their populations. There is an urgent need for improved standardized information on the following:

(i) the food situation in each country to be supplied to planners in order to ensure that they manage their resources properly.

(ii) On the best food to grow.

(iii) On the new varieties of food with high yield food value.

(iv) On the modern methods of farming.

(v) On storage systems and facilities.

(b) Protection of crops and animal health

Many African countries are engaged in crop farming and animal husbandry. Modern intensiv agriculture of high-yielding varieties brings in its train the problem of losses caused by disease and parasites. In order to avoid considerable losses of crops, information on protective systems should be made available to African countries, in order to make it possible to preserve the high yields resulting from genetic improvement and from the rational use of inputs to improve the soil.

Research information resulting from phytopathological and entomological research should be made available as well as information resulting from research into methods of protection of high quality crop varieties. In the case of animal health, information resulting from research on those diseases that cause the greatest damage should be made available.

(c) Population Activities

Dissemination of information related to population activities, e.g. control of population, mortality, fertility etc. is becoming crucial to Africa's development. Information on total population size, its composition by age and sex, geographical distribution and its socio-economic characteristics is a basis in plannning

programmes in education, health, housing, transport, industrial development projects etc. Those involved in collection and analysis of population information need to make such information available to planners, and policy makers in order to enhance the effectiveness of planning and implementation of socio-economic development. Population information dissemination would help planners and policy makers to formulate relevant population related programmes by educating them on the usefulness and benefits they would derive from such programmes. It is therefore necessary to establish the necessary mechanisms for population information dissemination which are at present lacking in most African countries.

The need for dissemination of population information for development has been expressed at a number of fora. For example, The Lagos Plan of Action has called for greater integration of population variables in development planning. Dissemination of relevant population information has a significant role in achieving this. The Parliamentary Conference on Population and Development in Africa held in Nairobi, Kenya, 4 to 5 July 1981 noted that there was a general need for population education in Africa to inform the population on the relationship between population and development. ECA Resolutions 366(XIV) of 1979 and 400(XV) of 1981 and recorded the need to expand and improve population and documentation activities. Most recently the Kilimanjaro Programme of Action on Population (KPA) has stressed the need for member States to develop appropriate mechanisms for disseminating available demographic data to policy makers, project officers, and the general public

Action taken by some member States and ECA

In a few of the member States the radio and the newspapers have been used in a systematic manner to disseminate population information. One of the common means used by a number of African governments in disseminating population information from population censuses and/or surveys has been the convening of seminars to discuss the results. Such seminars have been conducted in the recent past in Kenya, United Republic of Tanzania, Mauritius, Zambia, Republic of Cote d'Ivoire, Sierra Leone, Republic of Cameroon, Guinea (Conakry), Chad, Malawi etc. The main problem with such seminars is that they have in general been conducted at national level and hence only a few people have been involved.

The role of ECA

ECA has been involved in collection and dissemination of population information as far back as 1970 with the objective of creating and enhancing better awareness of the inter relationships between population and development through:

(i) publications such as the African Population Newsletter, Africa Population Studies series, Demographic Handbook for Africa, Case Studies on Population and development, reports on national Seminars on Population and development, etc.

(ii) Assistance to member States on organizing Seminars on population and development.

(iii) Assistance to member States in analysis of population censuses and survey data.

ECA, in order to intensify the activities in the field of population information dissemination and documentation has established Population Information Network for Africa (POPIN-AFRICA) as of January 1980. National Institutions dealing with population information have been contacted to join the network. Details on POPIN-Africa are presented in a separate paper for presentation to this conference.

Diffusion of population information is essential for socio economic development. Most governments have now realized the importance of population information. Every effort should therefore be made to improve the dissemination of population information as well as the quality of population data.

(d) Conservation and improvement of land already under cultivation and the development of new land.

There is need to encourage settled farming in some countries in Africa, and improve land already under cultivation, through the dissemination of information on soil physical features, suitability for agriculture in relation to the range of crops under consideration, fertility, and erosion control.

(e) Checking of urbanisation process

Many countries in Africa are experiencing very high rates of urbanisation. The rapid increases in urban populations has serious consequences on the urban and rural areas. To plan for urban housing, schools, jobs and roads for the urban populations, proper information is needed, e.g. on the rate of rural-urban migration, reasons for rural urban migration, urban age structures etc.

(f) Water Development for Irrigation

Information for water development is important to ensure the supply of water and the moisture retention necessary to support plant life. Properly sited research centres should be established in Africa to provide information on problems of irrigation, drainage, control of flooding and desalination. Research should be geared to the use of surface and under ground water for agricultural and livestock needs.

(g) Research development and utilisation of improved Agricultural Techniques for both traditional and new crops

The aim of such a programme is to study and adopt new and improved farming techniques for the dual purpose of increasing crop yields and reducing production costs. The rational working of tropical soils must be directed at preventing soil erosion while improving permeability, porosity and water conservation. Information on the techniques for the use of animal and motorised traction should be determined for each type of soil and for each type of crop, to avoid any action that might reduce yields. It would also be worthwhile incorporating into this programme measures for the control of parasitic plants harmful to crops. When the state of health of livestock has been brought effectively under control, the improvement of nutrition and stock farming must logically increase productivity.

(h) Import of technology from the Industrialised Nations

The productivity of countries in Africa, and the income earning opportunities associated with it depend crucially on the application of modern scientific knowledge, to the identification and generation of improved technologies and the use of technologies in the production processes. High priority should therefore be attached to scientific development and to the use of technology for the social economic development of the African Countries.

In addition to the generation of technology in Africa, a lot of technology is imported. As well as influencing the production factors and socio-cultural characteristics of countries in Africa, imported technologies have strong effect on Africa's scientific and technological potential. These influences can be advantageous or detrimental, depending on the conditions under which the import takes place. It follows that information on the following has to be disseminated:

(1) Influence of technology transfer on the overall scientific and technological development of the countries of Africa.

(2) The international patent system and its role in the transfer of technology.

(3) The transfer of operative technologies in relation to the develoment process.

(4) Links between operative technologies in relation to the development process.

(5) Policies for introduction of new technologies.

(i) Storage and Preservation of Agricultural Products

The use of new techniques in Agricultural Production will have the effect of placing the products of large harvests on the Market. This situation calls for information on crop

preservation in order to reduce, if not completely eliminate wastage at all levels. The preservation of stocks of agricultural produce will provide farmers with a fair price for their produce and eliminate periods of scarcity.

J. Africa's External Indebtedness

The external indebtedness of African countries has continued to worsen over the last few years. This is due partly to the inability of African countries to generate adequate incomes and domestic savings they have resorted to financing the difference between savings and investment and balance-of payments deficits through increased borrowing from both bilateral and private sources. Such additional loans were invariably secured at increasingly unfavourable terms and include over increasing interest-rates, particularly over the period 1979-1982. Africa's external indebtedness, which has been particularly aggravated by the adverse international economic situation, has been a matter of great concern to most African Governments.

Of interest to African countries on the question of external indebtedness is the issue of lack of information on important items, on which, information could alleviate the problem of external indebtedness. The following items require up to date processed information disseminated to policy makers and planners:

(a) Information on proper tax systems for African countries, and not the systems borrowed from former colonial administrations.

(b) Adequate information on terms under which external loans are granted and the economic returns from the programmes financed with such loans. Information on this is particularly useful on these two issues.

- Technical estimates

Feasibility studies and technical estimates carried out in many African countries are often based on practical experience of some developed countries; such experience is not necessarily relevant to African countries. That is why the manpower and management techniques of firms financed with foreign capital are not immediately adaptable to the production and management methods required in African industrial plants. Experience also shows that production costs become higher than originally planned, partly because of lack of adequate estimate to factor inputs, technology and raw materials, all of which usually imported at high prices.

Import requirements generated by the development programme

There is an inherent lack of adequate information to forecast the volume of imports required to implement a development programme, because such an exercise requires analytical tools which are not often available in African countries.

(k) Nutrition and Food Technology Research

Institutions should be established to provide specialised research information into traditional food practices with a view to improving them.

(l) Natural Resources and Energy

The above may be interpreted to include agriculture, forests, mineral and water resources, solar energy, oil energy etc. Conservation and exploitation of natural resources will require a diverse assortment of information needs and users. For example, planning Ministries need information on good agricultural practices for preparation of soil, harvesting of crops and animal husbandry. In all these situations information to be transferred and generated include:

(1) Data on the physical characteristics of the resources themselves.

(2) Data on the techniques for exploiting them ordinarily. The first type of information backed up where appropriate by international hydrological, meteorological and oceanic data. Such surveys can be carried out by domestic organizations under contract by foreign organizations if the necessary expertise is not available locally.

(m) Industrial growth and production

The Industries of the African countries are growing rapidly and production of various commodities by these industries is also growing. Manufacturing and commerce play a major role in expanding incomes and alleviating poverty. These sectors if they grow more rapidly than the economies as a whole could be important sources for the creation of income-earning opportunities for these countries and their growing labour force.

It therefore follows that countries in Africa need processed technical information for the formulation of industrial objectives and the determination of appropriate national development strategies.

As we can gather from the preceding paragrphs, dissemination of information to planners and decision makers is becoming extremely vital in the development process. However, as far as Africa is concerned, there are several issues which need to be addressed in order to effectively disseminte information for development planning. The following are some of the crucial issues.

(I) Finance

The severely limited financial means of most documentation and information centres in Africa is self-evident. The problem is made worse by the exchange control regulations of many countries and the

relatively high cost of journals, books and information services from the industrialised countries.

The access to international data bases or networks is also proving a very expensive affair. Firstly, the cost of search especially inter active searches will usually exceed the economic capabilities of individual researchers. The total cost of such database searches include both access fees of various kinds (e.g. subscription rate, hourly rate, on line or off-line print) and telecommunication costs, which in the case of most African countries requiring inter continental linkages are prohibitive.

(II) Technical

The technical issue is mostly associated with the backward levels of telecommunications technology in Africa, and the phenomenon that many international communication linkages are designed to serve users in industrialised countries. Although quite a few African countries have established one or several linkages with international satellite communications systems the local telecommunication systems are frequently fraught with technical problems. The result is that, at best, there will be one communications node in the country, but the establishment of a decentralized network for access to international communications through this mode is very difficult.

(III) Organization

The unco-ordinated piece meal development of government institutions and frequent reorganisation in many African countries, has resulted in duplication of effort and dissipation of resources. The "co-ordination of all services involved in the provision of information" as laid down in UNESCO's National Information System (NATIS) guidelines proves extremely difficult when information dissemination is the task of so many different Ministries and departments.

(IV) Personnel

One of the issues which is being discussed by many African countries is the lack of qualified information professionals in Africa. On the one hand, it appears that there has been a long-run tendency to ignore the need for educational programmes for librarians and information scientists. On the other hand, the problem appears to have been maximized by the new technologies and the key role which they play in modern information services. These advanced information technologies, especially in their present form, have been less than user friendly and the information professional thus tend to become an important source of knowledge in the user's information search.

As the importance of information sources for development purposes are becoming generally recognized in society, the need for user education will expand accordingly. Moreover, the above

mentioned introduction of information technologies also tend to raise the requirements for user education. This vital aspect of the promotion of information flow appears to be largely ignored in Africa; and therefore becomes a key issue on the effective information flow.

(V) Compatibility

This affects the use of non-specialized terminals (e.g. microcomuters) in international on-line information retrieval. Again, the problems are aggravated by the lack of digitalized networks and packet switching facilities in African countries. When a centralized node for international communications is set up with specially leased connections to international networks and special equipment, however, the problem of compatibility is naturally minimized.

VI. Legal

Most of the scientific and technological information which is generated in the formal, public research and development systems of industrialized countries is freely available to users in Africa, under the cost structure mentioned above. But a significant portion of the information which is potentially interesting to African countries are protected by various, kinds of legal provisions. One of the systems which could offer information but under strict conditions regarding propriety is the patent information system. Patents represent a rich source of technical information, but the use of this information is usually circumscribed by the need to enter into a licensing agreement with the owner of the patent.

Similarly the diffusion of information in Africa may be limited by copyright provisions. The issues of copyright has become especially significant lately precisely because of new information technologies: the access to photocopying equipment in industrialized countries tend to reduce the economic returns on commercial publishing with the result that prices on books and periodicals go up. The increased cost of printed matter has hit the African countries very hard and local possibilities of extensive photocoping do not appear within reach at present. Copyright is also having a negative influence on the international flow of information from the view point of African countries in the sense that much of the information which is important and which occasionally originate in Africa itself (e.g. scientific articles, abstracts, data on ecological structures etc.). May in fact be issued by various private or public institutions in industrialized countries, and subsequently protected by copyright provisions from widespread dissemination in Africa.

VII. Political

Due to the situation where an apparently increasing number of information sources are considered strategically important for national defense or economic interests, these information items tend

to become increasingly difficult to access from Africa. One aspect of this trend is that growing political tension between superpowers promotes a more widespread use of secrecy and other means of protecting sensitive data.

This enlarged realm of protection reaches not only the information directly related to military projects - where the need for secrecy is quite understandable but in addition affects the flow of information which is only marginally related to the defense sector, e.g. the results of research associated with advanced computer systems.

VIII. Economic Interests

These also tend to give rise to protective measures and secrecy. In the case of large transnational firms - which incidentally account for at least one-third of the global financial resources or R&D. Most of the information which originates in the firms research and development is naturally considered an economic asset and therefore not publicly disclosed. In the case of countries where most economic activities are controlled by the state, constraints on the flow of information arisen primarily on account of the strategic which nearly all economic activities occupy in the defense systems of these state.

IX. Cultural

A number of issues would appear to derive from basic differences in cultural contexts. Two of these merit special attention here: difference in language and in the basic modes and priorities of research. On the one hand, language barriers and the fact that an exceedingly small number of languages (e.g. English) tend to dominate scientific and technical communication will frequently present greater difficulties for information users in Africa. Even if the colonial heritage of many African countries have introduced one of the major languages for scientific communication to a comparatively small segment of the population, the indigenous languages of the vast majority of users in these countries are nevertheless different, and widespread command of a second language does seldom exist. Simultaneously, the resources available for professional interpreation and translation will also frequently be insufficient to make up for this gap.

On the other hand, it has become increasingly clear that the way in which scientific research and development is conducted in the Western industrialized countries and the priorities which are set for research and development in this cultural context may be alienating for many African countries. For this reason the information generated in industrialized countries and becoming available through international channels may only be indirectly relevant for solutions to the problems facing users in African countries. Given a difference in educational standards, the information accessible through international information flows can also be difficult to utilize in Africa. A lack of priorities in research concerning the

scientific and technological issues which are vital to the African countries (e.g. diarrhoea), and consequently a relative lack of information on these issues in international networks, will be sensed as a direct difficult issue in the usefulness of international flows of information too.

Concluding remarks

The ultimate reason for analysing issues in relation to information dissemination for development planning, is to develop a framework for action. For example, there obviously exist an option for subsidizing the flow of information to African countries in various ways, i.e., overcoming the financial constraints. One possibility is to reduce the costs of publications, either by direct subsidy of purchases made by institutions in Africa. Another possibility is for the industrialized countries to provide preferential access to data-bases and/or the telecommunications linkages involved in conducting on-line search from the African countries.

Another sphere of action might tackle technical problems such as for instance, providing new information technology to African countries or betterstill enhancing the indigenous capability to produce and utilize these technologies. Such action may involve the development of new software packages, or international attempts to standardize systems so that the problem of compatibility is minimized. For Africa, information systems like the Pan-African Documentation and Information System (PADIS), should be given more support by the African countries, so that this system can be strengthened to effectively serve the African member States. African countries should put more financial resources into the development of both regional and sectoral information systems so that the problem of reliance on external information systems is minimized.

An extremely important conclusion which the analysis of issues suggests is that the factors affecting information flow in Africa are highly complex and covers a wide range of issues. Therefore, the action to be undertaken in order to alleviate the disadvantaged situation of people in Africa should ideally be systematic and consistent. Merely dealing with one element of this highly complex process - or undertaking action in an ad-hoc manner is not likely to produce much result. What is needed is an agenda of concerted action which includes actors at both national, regional and international levels and which deals with more than one dimension of information flow.